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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,207	12/18/2001	Reza-Ur Rahman Khan	1875.1640088	7969

7590

01/16/2003

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EXAMINER

SOWARD, IDA M

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/020,207

Applicant(s)

KHAN ET AL.

Examiner

Ida M Soward

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 28-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the election filed October 28, 2002.

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-27 in Paper No. 6 are acknowledged. The traversal is on the ground(s) that "a thorough search for the apparatus and method claims will require search in the same art areas". This is not found persuasive because the substrate in an integrated circuit (IC) package requires a search in the 257 class art area and the method of forming a substrate for an integrated circuit (C) package requires a search in the 438 class art area.

The requirement is still deemed proper and is therefore made FINAL.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-8, 13 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Karnezos (6,020,637).

Karnezos teaches a substrate in an integrated circuit (IC) package **100**, comprising: a first surface that has a central opening **154**, wherein the central opening has an edge **166b**, wherein the edge includes at least one protruding edge portion that extends into the central opening and at least one recessed edge portion, wherein the first surface includes at least one hole proximate to the edge; a substantially rectangular central opening; the IC package being a ball grid array package; the at least one protruding edge portion being tab-shaped; a trace **164** on the first surface corresponding to the at least one protruding edge portion, wherein the trace extends into the at least one protruding edge portion; and the at least one protruding edge portion configured to allow a wire to couple an IC die **112** to the trace.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-12, 14-15 and 18-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karnezos (6,020,637) as applied to claims 1-8, 13 and 16-17 above, and further in view of Yazawa et al. (US 2002/0072214 A1).

Karnezos teaches all mentioned in the rejection above. Karnezos further teaches at least one trace **118** on a surface proximate to the edge and a central ring **118a**; and at least one recessed edge portion configured to allow a corresponding ground wire **126** to couple an IC die **112** to the central ground ring **164**, wherein the central opening has an edge, wherein the edge includes: (a) a protruding edge portion that extends across at least a portion of the central ground ring, (b) a recessed edge portion that exposes a portion of the central ground ring, (c) a hole proximate to the edge, wherein the hole exposes a portion of the central ground ring; and the central ground ring **164** surrounds a cavity; (Figure 4, col. 8, lines 1-37). However, Karnezos fails to teach a stiffener. Yazawa et al. teach an integrated circuit (IC) package having a substrate **30** capable of being coupled to a surface of a stiffener **54**, wherein the substrate is coupled to the surface of the stiffener (Figure 6, page 4, paragraphs [0065] – [0069]). Yazawa et al. further teach the stiffener having a first surface, wherein the first surface of the stiffener is attached to the substrate; and the stiffener having a central cavity that coincides with the central opening of the substrate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the integrated circuit (IC) package of Karnezos with the integrated circuit (IC) package having a stiffener of Yazawa et al. to provide a device that can be used in a notebook computer.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent are cited to further show the state of the art with respects to

BGA integrated circuit (IC) packages:

Camenforte et al. (US 2002/0180040 A1)

Chao et al. (US 2002/0053731 A1)

Cofe et al. (US 2002/0096767 A1)

Hamzehdoost (5,999,415)

Ho et al. (US 6,242,279 B1)

Lau et al. (6,057,601)

Lee et al. (US 2002/0098617 A1)

Marcantonio (5,796,170).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M Soward whose telephone number is 703-305-

3308. The examiner can normally be reached on Monday - Thursday, 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-

0956.

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IMS

December 16, 2002



AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800